

Nalco Docket No.: 7780-NES
Customer No. 000049459

CLAIMS

1. (currently amended) A paraffin inhibitor comprising a polymer consisting of
 - (a) about 1 to about 98 weight percent of one or more C₁-C₃₀ alkyl esters of acrylic acid;
 - (b) about 1 to about 98 weight percent of one or more C₁-C₃₀ alkyl esters of methacrylic acid;and
 - (c) about 1 to about 30 weight percent of one or more unsaturated monomers selected from the group consisting of (meth)acrylamide monomers, vinyl aromatic monomers, vinyl cycloalkyl monomers, ~~vinyl heterocyclyl monomers~~, vinyl esters of aliphatic acids, vinyl esters of aromatic acids, vinyl esters of heterocyclic acids, maleimide and maleic anhydride, wherein the vinyl cycloalkyl monomers are selected from monomers of formula cycloalkyl-CH=CH₂ wherein cycloalkyl is a non-aromatic monocyclic or heterocyclic ring system of about 5 to about 15 ring atoms, optionally substituted with one or more C₁-C₃₀ alkyl or C₁-C₃₀ alkoxy groups, the (meth)acrylamide monomers are selected from the group consisting of formula H₂C=C(R₃)CONR₁R₂ wherein R₃ is H or CH₃; and R₁ and R₂ are independently selected from H and C₁-C₄ alkyl, optionally substituted with -SO₃H and wherein the alkyl ester portion of at least one of (a) or (b) is C₁₀-C₃₀ alkyl.
2. (original) The paraffin inhibitor of claim 1 wherein the polymer has a number average molecular weight of about 1,000 to about 150,000 Daltons.
3. (original) The paraffin inhibitor of claim 2 wherein the unsaturated monomer is selected from the group consisting of styrene, vinyl acetate, maleic anhydride, vinyl cyclohexane, vinyl propionate and cinnamic acid C₁-C₄ alkyl esters.
4. (previously presented) The paraffin inhibitor of claim 3 comprising about 65 to about 85 weight percent of the C₁-C₃₀ alkyl ester of acrylic acid;

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5. (previously presented) The paraffin inhibitor of claim 3 comprising about 65 to about 85 weight percent of a C₁₆-C₂₄ alkyl ester of acrylic acid.
6. (previously presented) The paraffin inhibitor of claim 3 comprising about 5 to about 15 weight percent of the C₁-C₃₀ alkyl ester of methacrylic acid.
7. (previously presented) The paraffin inhibitor of claim 3 comprising about 5 to about 15 weight percent of a C₁₀-C₃₀ alkyl ester of acrylic acid.
8. (previously presented) The paraffin inhibitor of claim 3 comprising about 5 to about 15 weight percent of the unsaturated monomer.
9. (original) The paraffin inhibitor of claim 8 wherein the unsaturated monomer is styrene, vinyl acetate or maleic anhydride.
10. (original) The paraffin inhibitor of claim 8 having a number average molecular weight of about 10,000 to about 100,000 Daltons.
11. (original) The paraffin inhibitor of claim 3 wherein the alkyl ester of acrylic acid is behcnyl acrylate, the alkyl ester of methacrylic acid is lauryl methacrylate and the unsaturated monomer is styrene or vinyl acetate.
12. (original) The paraffin inhibitor of claim 3 comprising about 5 to about 20 weight percent of the C₁-C₃₀ alkyl ester of acrylic acid.
13. (previously presented) The paraffin inhibitor of claim 3 comprising about 5 to about 20 weight percent of a C₁₆-C₂₄ alkyl ester of acrylic acid.

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14. (previously presented) The paraffin inhibitor of claim 3 comprising about 70 to about 85 weight percent of the C₁-C₃₀ alkyl ester of methacrylic acid.
15. (previously presented) The paraffin inhibitor of claim 3 comprising about 70 to about 85 weight percent of a C₁₀-C₁₆ alkyl ester of acrylic acid.
16. (previously presented) The paraffin inhibitor of claim 3 wherein the alkyl ester of acrylic acid is lauryl acrylate, the alkyl ester of methacrylic acid is behenyl methacrylate and the unsaturated monomer is vinyl acetate.
17. (original) A paraffin inhibitor composition comprising the polymer of claim 1 and one or more organic solvents.
18. (original) A paraffin inhibitor composition comprising the polymer of claim 1 dispersed in water.
19. (original) The paraffin inhibitor composition of claim 17 comprising about 1 to about 50 weight percent of the polymer of claim 1, based on polymer actives.
20. (original) The paraffin inhibitor composition of claim 17 comprising about 5 to about 30 weight percent of the polymer of claim 1, based on polymer actives.
21. (original) The paraffin inhibitor composition of claim 17 that is liquid at a temperature of 0 °C.
22. (original) A method of inhibiting the deposition of paraffin and improving the flow properties of oil comprising adding to the oil an effective amount of the polymer of claim 1.

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23. (original) A method of inhibiting the deposition of paraffin and improving the flow properties of oil comprising adding to the oil an effective amount of the composition of claim 17.

24. (original) The method of claim 23 wherein the oil is crude oil, condensate or middle distillate.

25. (original) The method of claim 24 wherein the oil is crude oil.

26. (original) The method of claim 23 wherein the oil is fuel oil or diesel.

27. (previously presented) A method of inhibiting the deposition of paraffin and improving the flow properties of oil comprising adding to the oil about 1 to about 5,000 ppm, based on polymer actives of the polymer of claim 1.

28. (previously presented) The method of claim 27 wherein about 10 to about 300 ppm, based on polymer actives of the polymer of claim 1 is added to the oil.